QC-ABSTRACT

Name of Work:- Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No 02 2017-18 (1) 4 works, BBMP, Bangalore.

Sl No.	Item	Quantity As Per BOQ	Required No's of tests	Actual No's of tests	Tests
1	WMM	1065.06 Cum			
	Gradation		6	6	
	Aggregate Imoact Value		2	2	
	Shape test		3	3	
	Atterberg Limit		6	6	
2	DBM	291.27 Cum			
	Quality Binder		1	1	
	Aggregate Imoact Value		1	1	
	Shape test		1	1	
	Specific Gravity		1	1	
	Gradation		1	1	
	Stability of Mix		1	1	
	Bitumin Content		1	2	
3	BC	634.98 Cum			
	Quality Binder		1	1	
	Aggregate Imoact Value		1	1	
	Shape test		1	1	
	Specific Gravity		1	1	
	Gradation		1	1	
	Stability of Mix		1	1	
	Bitumin Content		2	3	

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ISO 9001:2015 Certified & NABL Accredited Laboratory as per ISO/IEC - 17025-2017

Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : : 19.07.2021

GRADATION FOR WMM

Client: **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency: **M/s. MSV Construction Company,** Bangalore.

Name of Work: Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 19.07.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	201	201	2.0	98.0	95-100
22.4	2458	2659	26.6	73.4	60-80
11.2	2236	4895	49.0	51.1	40-60
4.75	1528	6423	64.2	35.8	25-40
2.36	1235	7658	76.6	23.4	15-30
0.600	569	8227	82.3	17.7	8-22
0.075	1458	9685	96.9	3.1	0-5

Note:

1. The Material is satisfie as per the requirement.

FOR CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Corporate Off.: No. 133, Bhuvaneshwarinagar, Doddabasti Main Road, Bangalore-560 056.
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CIVIL QUALITY CONSULTANTS & ENGINEERS
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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22

Date : : 19.07.2021

GRADATION FOR WMM

Client: **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency: **M/s. MSV Construction Company,** Bangalore.

Name of Work: Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 19.07.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	262	262	2.6	97.4	95-100
22.4	2541	2803	28.0	72.0	60-80
11.2	2369	5172	51.7	48.3	40-60
4.75	1427	6599	66.0	34.0	25-40
2.36	1235	7834	78.3	21.7	15-30
0.600	621	8455	84.6	15.5	8-22
0.075	1123	9578	95.8	4.2	0-5

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : : 10.08.2021

GRADATION FOR WMM

Client **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency **M/s. MSV Construction Company,** Bangalore.

Name of Work Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 10.08.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	258	258	2.6	97.4	95-100
22.4	2563	2821	28.2	71.8	60-80
11.2	2321	5142	51.4	48.6	40-60
4.75	1658	6800	68.0	32.0	25-40
2.36	1235	8035	80.4	19.7	15-30
0.600	696	8731	87.3	12.7	8-22
0.075	956	9687	96.9	3.1	0-5

Note:
1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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ISO 9001:2015 Certified & NABL Accredited Laboratory as per ISO/IEC - 17025-2017
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Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : : 10.08.2021

GRADATION FOR WMM

Client **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency **M/s. MSV Construction Company,** Bangalore.

Name of Work Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 10.08.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	241	241	2.4	97.6	95-100
22.4	2369	2610	26.1	73.9	60-80
11.2	2214	4824	48.2	51.8	40-60
4.75	1632	6456	64.6	35.4	25-40
2.36	1325	7781	77.8	22.2	15-30
0.600	654	8435	84.4	15.7	8-22
0.075	1235	9670	96.7	3.3	0-5

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : : 20.10.2021

GRADATION FOR WMM

Client **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency **M/s. MSV Construction Company,** Bangalore.

Name of Work Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 20.10.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	235	235	2.4	97.7	95-100
22.4	2418	2653	26.5	73.5	60-80
11.2	2563	5216	52.2	47.8	40-60
4.75	1427	6643	66.4	33.6	25-40
2.36	1123	7766	77.7	22.3	15-30
0.600	658	8424	84.2	15.8	8-22
0.075	1125	9549	95.5	4.5	0-5

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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ISO 9001:2015 Certified & NABL Accredited Laboratory as per ISO/IEC - 17025-2017

Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22

Date : : 08.11.2021

GRADATION FOR WMM

Client **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency **M/s. MSV Construction Company,** Bangalore.

Name of Work Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 08.11.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	236	236	2.4	97.6	95-100
22.4	2541	2777	27.8	72.2	60-80
11.2	2125	4902	49.0	51.0	40-60
4.75	1428	6330	63.3	36.7	25-40
2.36	1325	7655	76.6	23.5	15-30
0.600	651	8306	83.1	16.9	8-22
0.075	1325	9631	96.3	3.7	0-5

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Corporate Off.: No. 133, Bhuvaneshwarinagar, Doddabasti Main Road, Bangalore-560 056.
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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 19.07.2021

Aggregate Impact Value

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	19.07.2021

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines $100^* (W_2/W_1)\%$	21.96	22.37	**22.16**

Comments:
→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:
→ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS
Authorised Signatory

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 20.10.2021

Aggregate Impact Value

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	20.10.2021

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	387	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	303	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.30	21.71	**21.50**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

→ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Corporate Off.: No. 133, Bhuvaneshwarinagar, Doddabasti Main Road, Bangalore-560 056.
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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : 19.07.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**: M/s. MSV Construction Company,** Bangalore.
Name of Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	19.07.2021

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	10.5	11.6	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.3	14.1	
	Combined Flakiness & Elongation index	22.80	25.7	

Note:
→ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : 20.10.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**: M/s. MSV Construction Company,** Bangalore.
Name of Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	20.10.2021

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	14.2	10.6	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	9.5	12.3	
	Combined Flakiness & Elongation index	23.70	22.9	

Note:
→ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : 08.11.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**: M/s. MSV Construction Company,** Bangalore.
Name of Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	08.11.2021

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	12.3	14.1	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	11.5	13.6	
	Combined Flakiness & Elongation index	23.80	27.7	

Note:

→ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No: CQCE/BBMP/MSV/W.No.14/2021-22

Date: 27.10.2021

TEST REPORT ON PAVING BITUMEN

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	27.10.2021
Type of Mix	**Dense Graded Bituminous Macadam , VG 30**
Source of Location	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	53	Min 45
2	Softening point, 0C	64	Min 47
3	Ductility at 250C, cm	99	Min40
4	Flash Point, 0C	256	Min 220

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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CIVIL QUALITY CONSULTANTS & ENGINEERS
ISO 9001:2015 Certified & NABL Accredited Laboratory as per ISO/IEC - 17025-2017

Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

JobNo: CQCE/BBMP/MSV/W.No.14/2021-22

Date 27.10.2021

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency : **M/s. MSV Construction Company,** Bangalore.

Name of work :Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

Source / Location : Hot Mix Plant, Bangalore

BIS Code : IS 2386 Part (4):1963

Type of Mix : Dense Graded Bituminous Macadam

Date of test 27.10.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	387	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	85	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	302	306	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	21.96	21.34	**21.65**

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Corporate Off.: No. 133, Bhuvaneshwarinagar, Doddabasti Main Road, Bangalore-560 056.
Contact: 8553518550, 080-23240644 Email: civilqualityconsultants@gmail.com

CIVIL QUALITY
CONSULTANTS & ENGINEERS

ISO 9001:2015 Certified & NABL Accredited
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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

JobNo: CQCE/BBMP/MSV/W.No.14/2021-22 Date 27.10.2021

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency : **M/s. MSV Construction Company,** Bangalore.

Name of work : Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.

BIS Code : IS 2386 Part (1):1963

Date of Test 27.10.2021

Type of Mix : Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	11.30	10.80	22.10	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	11.60	10.70	22.30	

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22

Date: 29.10.2021

Specific Gravity And Water Absorption Test

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	27.10.2021 to 29.10.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2017	2019	2021	
2	Weight of basket suspended in water	W_2 g	754	754	754	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_3$ g	1263	1265	1267	
4	Weight of saturated surface dry aggregate in air	W_3 g	2014	2016	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	751	751	751	
6	Weight of oven dried aggregate	W_4 g	2005	2007	2008	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.670	2.672	2.674	2.672
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.702	2.705	2.710	2.706
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.45%	0.45%	0.50%	0.47%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(As per MORTH table 500.8)

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 27.10.2021

Aggregate Gradation Test

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	27.10.2021

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	698	7.0	6.98	93.02	90 - 100	
19.00	1205	12.1	19.03	80.97	71 - 95	
13.20	1234	12.3	31.37	68.63	56 - 80	
4.75	2463	24.6	56.00	44.00	38 - 54	
2.36	958	9.6	65.58	34.42	28 - 42	
0.300	1575	15.8	81.33	18.67	7 - 21	
0.075	1204	12.0	93.37	6.63	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	622	6.2	6.22	93.78	90 - 100	
19	1114	11.1	17.36	82.64	71 - 95	
13.2	1289	12.9	30.25	69.75	56 - 80	
4.75	2598	26.0	56.23	43.77	38 - 54	
2.360	1278	12.8	69.01	30.99	28 - 42	
0.300	1051	10.5	79.52	20.48	7 - 21	
0.075	1282	12.8	92.34	7.66	2 - 8	

Note:

1. The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 01.11.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX

AASHTO T 164 & AASHTO T 30

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
Date of Testing	01.11.2021

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.6	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.40	23.00
7. Bitumen content in %	4.48	4.60
8. Average	**4.54**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	33.7	33.7	7.1	92.9	90 - 100
19	70.4	104.1	21.8	78.2	71 - 95
13.2	66.4	170.5	35.7	64.3	56 - 80
4.75	91.1	261.6	54.8	45.2	38 - 54
2.360	67.2	328.8	68.8	31.2	28 - 42
0.300	92.1	420.9	88.1	11.9	7 - 21
0.075	34.5	455.4	95.4	4.6	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	34.4	34.4	7.2	92.8	90 - 100
19	78.8	113.2	23.7	76.3	71 - 95
13.2	65.5	178.7	37.5	62.5	56 - 80
4.75	81.2	259.9	54.5	45.5	38 - 54
2.360	74.8	334.7	70.2	29.8	28 - 42
0.300	91.2	425.9	89.3	10.7	7 - 21
0.075	23.3	449.2	94.2	5.8	2 - 8

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Note:

þ The Material is satisfie as per the requirement.

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 07.12.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
Date of Testing	07.12.2021

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	24.00	23.00
7. Bitumen content in %	4.80	4.60
8. Average	**4.70**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	35.2	35.2	7.4	92.6	90 - 100
19	70.4	105.6	22.2	77.8	71 - 95
13.2	66.4	172	36.1	63.9	56 - 80
4.75	92.3	264.3	55.5	44.5	38 - 54
2.360	67.2	331.5	69.6	30.4	28 - 42
0.300	92.1	423.6	89.0	11.0	7 - 21
0.075	35.6	459.2	96.5	3.5	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	30.4	30.4	6.4	93.6	90 - 100
19	70.1	100.5	21.1	78.9	71 - 95
13.2	65.5	166	34.8	65.2	56 - 80
4.75	85.6	251.6	52.7	47.3	38 - 54
2.360	74.8	326.4	68.4	31.6	28 - 42
0.300	91.2	417.6	87.5	12.5	7 - 21
0.075	22.5	440.1	92.3	7.7	2 - 8

Note:

Þ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 01.11.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	:	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	01.11.2021

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.31	10.81	9 Kn (min)
2	Marshal flow, mm	2.11	3.77	2 – 4
3	Percent air voids in Mineral Aggregate	13.22	14.89	13 – 15
4	Voids in Compacted Mix	3.33	5.66	3 – 6
5	Percent Voids filled with Bitumen	67.42	73.97	65 - 75
6	Density, g/cc	2.25	2.26	--

Note:

⇒ The Material is satisfie as per the requirement.

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 01.11.2021

TEST REPORT

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**M/s. MSV Construction Company,** Bangalore.
Name of the work	:	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	01.11.2021

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 °C, 1/10 mm	61	Min 45
2	Softening point, °C	64	Min. 47
3	Ductility at 27°C, cm	100 >	Min. 40
4	Flash Point, °C	251	Min. 220

Note:

⇒ The Material is satisfied as per the requirement..

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 01.11.2021

Aggregate Impact Value

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	01.11.2021

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	297	
4	Aggregate Impact value = percent fines			
	$100^* (W_2/W_1)$ percent	21.82	22.45	**22.14**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24% (MORTH table no.500.16)

Note:

⇒ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: The Material is satisfie as per the requirement. Date : 01.11.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Concrete
Date of Testing	01.11.2021

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	11.2	11.7	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	10.8	10.5	
	Combined Flakiness & Elongation index	22.00	22.20	

Note:
→ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: The Material is satisfie as per the requirement.

Date : 03.11.2021

Specific Gravity And Water Absorption Test

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	01.11.2021 to 03.11.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2018	2020	2022	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1263	1265	1267	
4	Weight of saturated surface dry aggregate in air	W_3 g	2013	2015	2017	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	750	750	
6	Weight of oven dried aggregate	W_4 g	2004	2006	2008	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.672	2.675	2.677	2.675
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.704	2.707	2.710	2.707
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.45%	0.45%	0.45%	0.45%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

Note:

⇒ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2020-21 Date : 01.11.2021

Aggregate Gradation Test

IS : 2386 Part I

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	01.11.2021

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	421	8.42	8.42	91.58	90 - 100	
9.5	456	9.12	17.54	82.46	70 - 88	
4.75	621	12.42	29.96	70.04	53 - 71	
2.36	649	12.98	42.94	57.06	42 - 58	
1.18	512	10.24	53.18	46.82	34 - 48	
0.600	568	11.36	64.54	35.46	26 - 38	
0.300	458	9.16	73.70	26.30	18 - 28	
0.150	325	6.50	80.20	19.80	12 - 20	
0.075	522	10.44	90.64	9.36	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	337	6.74	6.74	93.26	90 - 100	
9.5	516	10.32	17.06	82.94	70 - 88	
4.75	618	12.36	29.42	70.58	53 - 71	
2.36	672	13.44	42.86	57.14	42 - 58	
1.18	519	10.38	53.24	46.76	34 - 48	
0.600	521	10.42	63.66	36.34	26 - 38	
0.300	638	12.76	76.42	23.58	18 - 28	
0.150	189	3.78	80.20	19.80	12 - 20	
0.075	622	12.44	92.64	7.36	4 - 10	

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are those of the tests carried out on the samples received in the laboratory.

⇒ Any query regarding the report must be reported within 15 days from the date of testing.

Corporate Off. No. 133, Bhuvaneshwarinagar, Doddabasti Main Road, Bangalore-560 056.
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CIVIL QUALITY CONSULTANTS & ENGINEERS

ISO 9001:2015 Certified & NABL Accredited Laboratory as per ISO/IEC - 17025-2017

Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date : 05.11.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	**M/s. MSV Construction Company,** Bangalore.
NAME OF THE WORK	Construction of Anganavadi Building at Govt. Higher Primary School premuses Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works. BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	05.11.2021

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.4	469
3. Weight of Asphalt and Mineral matter Extracted, g	30.6	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.6	31
7. Bitumen content in %	6.12	6.20
8. Average	**6.16**	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	15.6	15.6	3.3	96.7	90 - 100
9.5	60.8	76.4	16.3	83.7	70 - 88
4.75	95.6	172	36.6	63.4	53 - 71
2.36	46.2	218.2	46.5	53.5	42 - 58
1.18	46.8	265	56.5	43.5	34 - 48
0.600	55.2	320.2	68.2	31.8	26 - 38
0.300	40.9	361.1	76.9	23.1	18 - 28
0.150	46.3	407.4	86.8	13.2	12 - 20
0.075	22.4	429.8	91.6	8.4	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	21.8	21.8	4.6	95.4	90 - 100
9.5	66.9	88.7	18.9	81.1	70 - 88
4.75	90.4	179.1	38.2	61.8	53 - 71
2.36	42.5	221.6	47.2	52.8	42 - 58
1.18	46.8	268.4	57.2	42.8	34 - 48
0.600	50.6	319	68.0	32.0	26 - 38
0.300	46.3	365.3	77.9	22.1	18 - 28
0.150	33.8	399.1	85.1	14.9	12 - 20
0.075	45.2	444.3	94.7	5.3	4 - 10

Note:
The Material is satisfied as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 25.11.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	**M/s. MSV Construction Company,** Bangalore.
NAME OF THE WORK	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
SAMPLE ID	:Hot Mix Plant, Bangalore
DATE OF TESTING	25.11.2021

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	468	469
3. Weight of Asphalt and Mineral matter Extracted, g	32	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	32	31
7. Bitumen content in %	6.40	6.20
8. Average	6.30	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	12.1	12.1	2.6	97.4	90 - 100
9.5	68.7	80.8	17.3	82.7	70 - 88
4.75	93.5	174.3	37.2	62.8	53 - 71
2.36	46.4	220.7	47.2	52.8	42 - 58
1.18	42.1	262.8	56.2	43.8	34 - 48
0.600	50.6	313.4	67.0	33.0	26 - 38
0.300	44.7	358.1	76.5	23.5	18 - 28
0.150	43.2	401.3	85.7	14.3	12 - 20
0.075	41.4	442.7	94.6	5.4	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	12.2	12.2	2.6	97.4	90 - 100
9.5	68.7	80.9	17.2	82.8	70 - 88
4.75	92.4	173.3	37.0	63.0	53 - 71
2.36	45.4	218.7	46.6	53.4	42 - 58
1.18	45.2	263.9	56.3	43.7	34 - 48
0.600	56.7	320.6	68.4	31.6	26 - 38
0.300	52.3	372.9	79.5	20.5	18 - 28
0.150	33.4	406.3	86.6	13.4	12 - 20
0.075	37	443.3	94.5	5.5	4 - 10

Note:
The Material is satisfied as per the requirement.

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Job No. CQCE/BBMP/MSV/W.No.14/2021-22 16.12.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	**M/s. MSV Construction Company,** Bangalore
NAME OF THE WORK	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
SAMPLE ID	:Hot Mix Plant, Bangalore
DATE OF TESTING	16.12.2021

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469	470
3. Weight of Asphalt and Mineral matter Extracted, g	31	30
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	31	30
7. Bitumen content in %	6.20	6.00
8. Average	**6.10**	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	12.2	12.2	2.6	97.4	90 - 100
9.5	66.3	78.5	16.7	83.3	70 - 88
4.75	96.5	175	37.3	62.7	53 - 71
2.36	48.2	223.2	47.6	52.4	42 - 58
1.18	41.8	265	56.5	43.5	34 - 48
0.600	42.3	307.3	65.5	34.5	26 - 38
0.300	40.6	347.9	74.2	25.8	18 - 28
0.150	45.8	393.7	83.9	16.1	12 - 20
0.075	52.3	446	95.1	4.9	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	16.2	16.2	3.4	96.6	90 - 100
9.5	66.6	82.8	17.6	82.4	70 - 88
4.75	95.8	178.6	38.0	62.0	53 - 71
2.36	47.8	226.4	48.2	51.8	42 - 58
1.18	50.6	277	58.9	41.1	34 - 48
0.600	53.6	330.6	70.3	29.7	26 - 38
0.300	51.2	381.8	81.2	18.8	18 - 28
0.150	26.5	408.3	86.9	13.1	12 - 20
0.075	28.5	436.8	92.9	7.1	4 - 10

FOR CIVIL QUALITY CONSULTANTS & ENGINEERS

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Note: The Material is satisfied as per the requirement.

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 05.11.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	:	Construction of Anganavadi Building at Govt. Higher Primary School premises Bhuvaneswari Nagar and Reconstruction and Improvements od roads and CC drain at 7th main 11th cross surroundings 11th A cross road. Bhuvaneswari Nagara and 3rd, 4th, 7th main road of MEI layout and MEI layout new Extn main road and cross in Ward No 14. Package No DZ 2017-18 (1) 4 works, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	05.11.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.05	10.84	9 Kn (min)
2	Marshal flow, mm	2.63	3.88	2 – 4
3	Percent air voids in Mineral Aggregate	13.11	14.76	13 – 15
4	Voids in Compacted Mix	3.07	4.99	3 – 6
5	Percent Voids filled with Bitumen	66.82	73.35	65 - 75
6	Density, g/cc	2.26	2.25	--

Note:

⇒ The Material is satisfie as per the requirement.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

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Testing of Construction Material - Mechanical, Soil, Bitumen, Non Destructive Testing Services, Project Management Consultants, Third Party Quality Assurance, DPR.

Job No.: CQCE/BBMP/MSV/W.No.14/2021-22 Date: 25.11.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**M/s. MSV Construction Company,** Bangalore.
Name of the Work	:	Improvements to road 8th,9th,10th main and 7th A, 8th A Cross 5th B ,17th cross and other cross roads at MEI Layout and 8thB, 9th Cross ,5th ,18th main and other cross roads and Reconstruction of CC roads at MEI Layout in Ward No.14 Dasarahalli Sub Division Package No.DZ 2017-18 (2) (4 Works), BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	25.11.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.85	10.62	9 Kn (min)
2	Marshal flow, mm	3.39	2.45	2 – 4
3	Percent air voids in Mineral Aggregate	13.48	14.55	13 – 15
4	Voids in Compacted Mix	3.69	4.84	3 – 6
5	Percent Voids filled with Bitumen	70.18	71.65	65 - 75
6	Density, g/cc	2.26	2.27	--

Note:

⇒ The Material is satisfied as per the requirement.

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